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CLAIMS

1. Connection apparatus for a network tester or analyser, the connection apparatus comprising:
  - 5 at least two network connection devices for connecting the apparatus to a network, each connection device being constructed and arranged to output serial electrical signals corresponding to signals received from a network to which the connection apparatus is in use connected; and,
  - 10 at least two solid state switches, each solid state switch being constructed and arranged to receive serial electrical signals output by a respective one of the network connection devices and to output a corresponding serial electrical signal;
  - 15 each solid state switch being controllable such that electrical signals corresponding to signals received from a said network can selectively be output by the solid state switch and received at the other or another of the solid state switches for return to a said network by said other
  - 20 or another of the solid state switches.
2. Connection apparatus according to claim 1, comprising a respective serial-to-parallel data converter for each solid state switch, each serial-to-parallel data converter  
25 being constructed and arranged to receive a serial electrical signal corresponding to signals received from a said network that is output by the respective solid state switch and to convert the received serial electrical signal into parallel form.
- 30 3. Connection apparatus according to claim 1 or claim 2, wherein each solid state switch is constructed and arranged to retime electrical signals received from the other or

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another of the solid state switches prior to returning said electrical signals to a said network.

4. Connection apparatus according to any of claims 1 to  
5 3, wherein at least one of the solid state switches is a port bypass circuit.

5. Connection apparatus according to claim 4, wherein each solid state switch is a port bypass circuit.

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6. Connection apparatus according to any of claims 1 to  
5, wherein each network connection device is constructed and arranged to receive optical signals from an optical network and to convert the received optical signals into  
15 serial electrical form for output to the respective solid state switch.

7. Connection apparatus for network testers and analysers, the connection apparatus comprising:

20 two network connection devices for connecting the apparatus to a network, each connection device being constructed and arranged to output serial electrical signals corresponding to signals received from a network to which the connection apparatus is in use connected; and,

25 two port bypass circuits, each port bypass circuit having at least three output ports, each port bypass circuit being constructed and arranged to receive serial electrical signals output by a respective one of the network connection devices and to output a corresponding  
30 serial electrical signal on a first of its output ports;  
each port bypass circuit being controllable such that electrical signals corresponding to signals received from a said network can selectively be output on a second of the

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output ports of the port bypass circuit and received at the other port bypass circuit for return to a said network via a third of the output ports of the other port bypass circuit.

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8. Connection apparatus according to claim 7, comprising a respective serial-to-parallel data converter for each port bypass circuit, each serial-to-parallel data converter being constructed and arranged to receive a serial

10 electrical signal corresponding to signals received from a said network that is output on the first port of the respective port bypass circuit and to convert the received serial electrical signal into parallel form.

15 9. Connection apparatus according to claim 7 or claim 8, wherein each port bypass circuit is constructed and arranged to retime electrical signals received from the other or another of the port bypass circuits prior to returning said electrical signals to a said network.

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10. A network tester comprising connection apparatus according to any of claims 1 to 9 so that the network tester can selectively be operated in in-line or end station mode when connected to a network.

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11. A network analyser comprising connection apparatus according to any of claims 1 to 9 so that the network analyser can selectively be operated in in-line or end station mode when connected to a network.

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12. A method of operating connection apparatus for a network tester or analyser, the connection apparatus comprising at least two network connection devices for

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connecting the apparatus to a network, each connection device being constructed and arranged to output serial electrical signals corresponding to signals received from the network; and, at least two solid state switches, each  
5 solid state switch being constructed and arranged to receive serial electrical signals output by a respective one of the network connection devices and to output a corresponding serial electrical signal; the method comprising:

10 selectively controlling each solid state switch such that electrical signals corresponding to signals received from the network are output by the solid state switch and received at the other or another of the solid state switches for return to the network by said other or another  
15 of the solid state switches whereby the apparatus operates in in-line mode, or such that electrical signals corresponding to signals received from the network and output by each solid state switch are not received at the other or another of the solid state switches whereby the  
20 apparatus operates in end station mode.

13. A method according to claim 12, comprising converting from serial to parallel form a serial electrical signal corresponding to signals received from the network that is  
25 output by one of the solid state switches.

14. A method according to claim 12 or claim 13, comprising retiming electrical signals received from the other or another of the solid state switches prior to returning said  
30 electrical signals to the network.

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15. A method according to any of claims 12 to 14, wherein at least one of the solid state switches is a port bypass circuit.

5 16. A method according to claim 15, wherein each solid state switch is a port bypass circuit.

17. A method according to any of claims 12 to 16,  
comprising receiving optical signals from an optical  
10 network at each network connection device and converting the received optical signals into serial electrical form for output to the respective solid state switch.

18. A method of operating connection apparatus for network  
15 testers and analysers, the connection apparatus comprising: two network connection devices for connecting the apparatus to a network, each connection device being constructed and arranged to output serial electrical signals corresponding to signals received from a network to which the connection  
20 apparatus is in use connected; and, two port bypass circuits, each port bypass circuit having at least three output ports, each port bypass circuit being constructed and arranged to receive serial electrical signals output by a respective one of the network connection devices and to  
25 output a corresponding serial electrical signal on a first of its output ports; the method comprising:

selectively controlling each port bypass circuit such that electrical signals corresponding to signals received from the network are output on a second of the output ports  
30 of the port bypass circuit and received at the other port bypass circuit for return to the network via a third of the output ports of the other port bypass circuit whereby the apparatus operates in in-line mode, or such that electrical

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signals corresponding to signals received from the network and output by each port bypass circuit are not received at the other port bypass circuit whereby the apparatus operates in end station mode.

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19. A method according to claim 18, comprising converting from serial to parallel form a serial electrical signal corresponding to signals received from the network that is output on the first port of one of the port bypass  
10 circuits.

20. A method according to claim 18 or claim 19, comprising retiming electrical signals received from the other or another of the port bypass circuits prior to returning said  
15 electrical signals to the network.